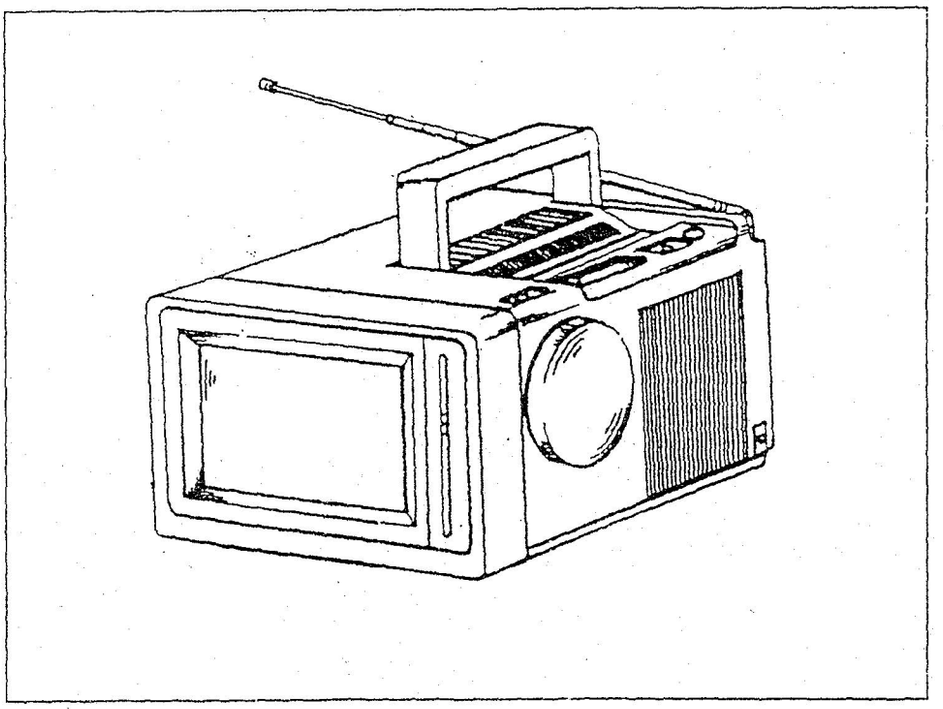
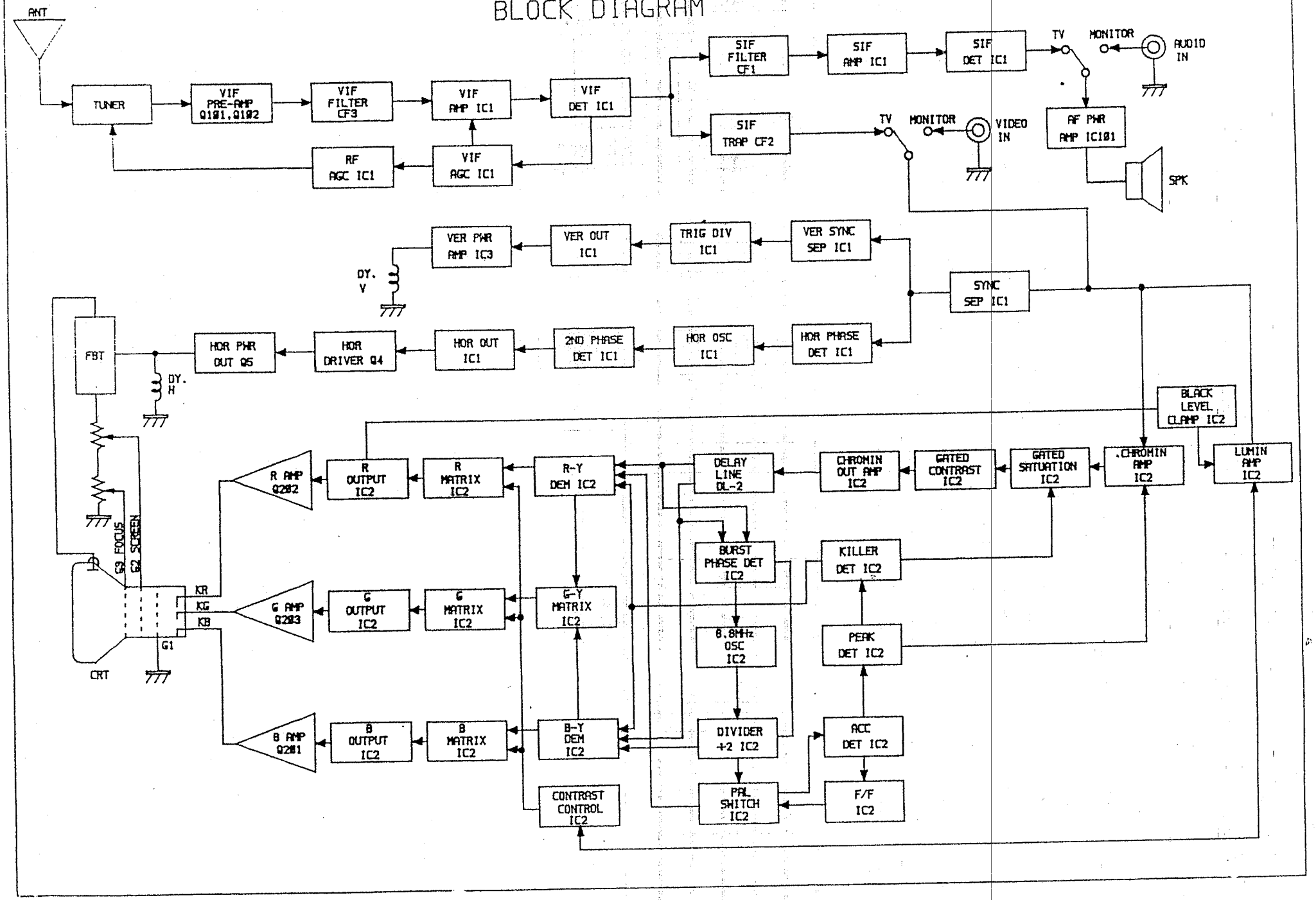
SuperTech
SOUND & VISION

SERVICE MANUAL

MODEL : CTV-903



BLOCK DIAGRAM



TV ELECTRICAL SPECIFICATION

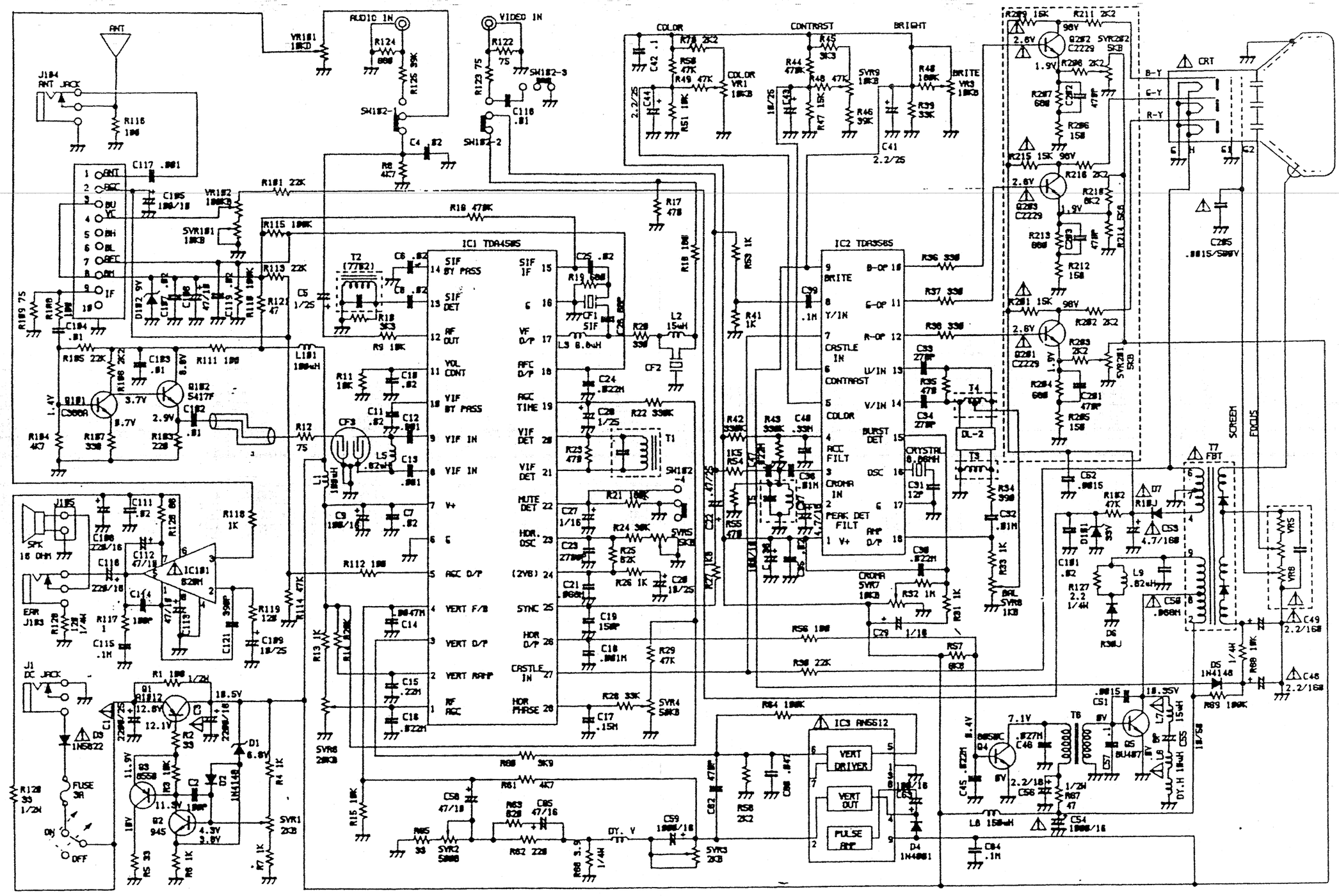
MODEL NO: OUTPUT: 50 mW
SUPPLY VOLTAGE : DC 13.5V LOAD : 16 ohm
GERERAL INFORMATION : TV 75 OHM INPUT ANT. SIFE VOLTAGE 0 dB =1uV

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
VL BAND										
TUNING RANGE	HIGH	MHZ	62.25	65.0						
	LOW	MHZ	48.25	45.0						
MAX/USABLE SENS	CH - 2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 3	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 4	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - 3	dB	40	50						
IMAGE REJ.	CH - 3	dB	40	50						
DIAL CALIB.	CH - 2	MHZ	± 7							
	CH - 3	MHZ	± 7							
	CH - 4	MHZ	± 7							
VH BAND										
TUNING RANGE	HIGH	MHZ	224.25	226.0						
	LOW	MHZ	175.25	170.0						
MAX/USABLE SENS	CH - 5	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 9	dB	32/46	26 /40	/	/	/	/	/	/
	CH - 12	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - 9	dB	50	60						
IMAGE REJ.	CH - 9	dB	40	50						
DIAL CALIB.	CH - 5	MHZ	± 7							
	CH - 9	MHZ	± 7							
	CH - 12	MHZ	± 7							

DESCRITTION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
UHF BAND										
TUNING RANGE	HIGH	MHZ	855.25	857.0						
	LOW	MHZ	471.25	468.0						
MAX/USABLE SENS	CH - 21	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 30	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 40	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 50	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 60	dB	36/52	30 /46	/	/	/	/	/	/
IF REJ.	CH - 40	dB	40	50						
IMAGE REJ.	CH - 40	dB	40	50						
DIAL CALIB.	CH - 14	CH	± 4							
	CH - 30	CH	± 4							
	CH - 40	CH	± 4							
	CH - 50	CH	± 4							
	CH - 60	CH	± 4							
ADJ. PIX. ATT.		dB	20	30						
ADJ. SND. ATT.		dB	20	30						
SELF. SND. ATT.		dB	20±6							
CONTRAST RANGE		dB	4	6						
SOUND										
MAX. OUTPUT		mW	500	600						
THD. OUTPUT 10 %		mW	500	600						
REF. THD		%	5	3						
S /N		dB	30	35						
AM SUPP.		dB	25	30						
MIN. IIOM		mV	30	15						
RESPONSE FH 6 KHZ		dB	-3±10	-3±3						
FL 125 HZ		dB	-3±6	-3±3						
SIF. FREQ. ERROR		KHZ	±100							
LIMIT SENS.		dB	80	70						

DESCRITTION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
PICTURE										
HOR . FREQ .		HZ	±500	0						
HOR. PULL-IN	+	HZ	300	600						
	-	HZ	300	600						
VERT. RANGE	+	HZ								
	-	HZ								
LINEARITY	VERT.	%	20	15						
	HOR.	%	25	15						
PINCUSHION	DIST.	%	2	1						
BARREL	DIST.	%	2	1						
KEYSTANE	DIST.	%	2	1						
V /H	RATIO	%	100±5	100						
LUMINANCE	MAX	lux	80	100						
	MIN	lux	50	30						
VA TEST										
H. V.	MAX	KV	13±1	13						
H. V.	MIN	KV	12±1	12						
BEAM CURRENT	MAX	uA	60	50						
BEAM CURRENT	MIN	uA	15	0						
REG. VOLTAGE		V	11±.2	11						
DELAY AGC. VOLTAGE		V	6±.5	6						
REG. RIPPLE VOLTAGE		mV	30	15						
DC CONSUMPTION		W	20	17						
AC CONSUMPTION		W	35	30						

SCHEMATIC DIAGRAM


ANT
J184 ANT JACK
R116 1M
AUDIO IN
VIDEO IN
VR181 10KB
R124 680
R125 39K
R122 75
R123 75
SW182-3
C116 .01
SW182-1
SW182-2
C4 .02
R8 4K7
C117 .001
C185 100/16
VR182 100KB
R101 22K
SVR181 10KB
R115 100K
R17 47K
R18 470K
R19 1K
R41 1K
C41 2.2/25
COLOR
CONTRAST
BRIGHT
COLOR VR1 10KB
SVR9 10KB
BRITE VR9 10KB
IC1 TDA4505
IC2 TDA3505
T2 (7782)
L2 15uH
L3 8.6uH
CF1
CF2
CF3
T1
L181 100uH
R111 100
R112 100
R113 22K
R121 47
R189 75
R186 1K
C184 .01
R185 22K
C183 .01
R188 2K2
Q181 C388A
Q182 5417F
C182 .01
R184 4K7
R187 330
R183 220
R12 75
L5 .82uH
L4 100uH
C9 100/16
C7 .02
R118 1K
R114 47K
R13 1K
R14 22K
R112 100
SVR6 20KB
R15 10K
C14 .0047M
C15 .22M
C16 .022M
C17 .15M
R28 33K
SVR4 50KB
R29 47K
C18 .001M
C19 150P
C21 .068M
C27 1/16
C23 270P
R24 30K
SVR5 50KB
R25 82K
R26 1K
C28 10/25
R21 100K
C24 .022M
C26 1/25
R22 330K
R23 470
C25 .02
R19 68K
R20 330
R9 10K
C6 .02
C8 .02
C5 1/25
R42 330K
R43 330K
C48 .33M
R55 470
C22 .47/25
C36 .01M
C35 .47/16
R54 1K5
C37 .47/16
R27 1K8
C38 .022M
R32 1M
R31 1K
C29 1/16
R56 100
R58 22K
R57 68K
C39 .1M
R58 2K2
C82 .47M
C86 .047
R84 100K
IC3 AN5512
VERT DRIVER
VERT OUT
PULSE AMP
R85 3K9
R81 4K7
R83 820
C85 47/16
R82 220
R86 1/4H
DY. V
C59 1000/16
SVR3 2KB
C58 47/16
R65 33
SVR2 500B
R15 10K
R64 1K
R63 1K
R62 945
R61 33
R66 1K
R67 1K
SVR1 2KB
R4 1K
D1 6.8V
D2 1N4148
D3 1N5822
FUSE 3A
ON
OFF
J1 DC JACK
R1 100 1/2W
Q1 R1812
Q2 C388A
Q3 8550
C1 2200/25
C2 2200/16
C3 .1
R2 33
R3 10K
18.5V
12.8V
12.1V
11.9V
11.3V
4.3V
3.8V
J185 SPK 16 OHM
EAR J183
R120 33 1/2W
R117 1
C115 .1M
C114 .1MP
C113 47/16
C112 47/16
C111 .02
C186 220/16
C116 220/16
C121 .39MP
C189 10/25
R119 120
R128 100
IC181 B20M
C188 100/16
R126 100
C187 .02
C180 47/16
C115 .02
R110 100K
D182 9V
R189 75
R186 1K
C184 .01
R185 22K
C183 .01
R188 2K2
Q181 C388A
Q182 5417F
C182 .01
R184 4K7
R187 330
R183 220
R12 75
L5 .82uH
L4 100uH
C9 100/16
C7 .02
R118 1K
R114 47K
R13 1K
R14 22K
R112 100
SVR6 20KB
R15 10K
C14 .0047M
C15 .22M
C16 .022M
C17 .15M
R28 33K
SVR4 50KB
R29 47K
C18 .001M
C19 150P
C21 .068M
C27 1/16
C23 270P
R24 30K
SVR5 50KB
R25 82K
R26 1K
C28 10/25
R21 100K
C24 .022M
C26 1/25
R22 330K
R23 470
C25 .02
R19 68K
R20 330
R9 10K
C6 .02
C8 .02
C5 1/25
R42 330K
R43 330K
C48 .33M
R55 470
C22 .47/25
C36 .01M
C35 .47/16
R54 1K5
C37 .47/16
R27 1K8
C38 .022M
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R56 100
R58 22K
R57 68K
C39 .1M
R58 2K2
C82 .47M
C86 .047
R84 100K
IC3 AN5512
VERT DRIVER
VERT OUT
PULSE AMP
R85 3K9
R81 4K7
R83 820
C85 47/16
R82 220
R86 1/4H
DY. V
C59 1000/16
SVR3 2KB
C58 47/16
R65 33
SVR2 500B
R15 10K
R64 100

REGULATOR ADJUSTMENT

1. Connect TV to DC 12V-14V
2. Adjust vertical and horizontal oscillator controls until display is synced.
3. Connect a DC digital voltmeter or other precision accuracy voltmeter to the collector of the regulator output transistor (or any 11 volt test point).

HORIZONTAL OSCILLATOR

ADJUSTMENT

Adjust core of horizontal hold SVR5 until the picture hold in sync.

1. POWER ADJUSTMENT

   Adjust the power adjust SVR1, enable voltmeter to DC 11V.

2. VERTICAL HIGHTNESS ALIGNMENT

   Adjust the vertical hightness SVR2 enable the circle of picture approach to circle.

3. HORIZONTAL POSITION ALIGNMENT

   Adjust horizontal position SVR4, let the square signal in the center of the screen.

4. RF AGC ALIGNMENT

   Adjust RF AGC SVR6 at input signal intensity 50dB, the screen could looking clear and 80dB the screen don't inflect.

5. WHITE BALANCE ALIGNMENT

   Adjust the SVR201, SVR202 at center position. Adjust screen VR, let the screen will be little brightness.
   Adjust SVR201 let the screen to be yellow, and then adjust SVR202 let the screen approach to white.

6. FOCUS ADJUSTMENT

   Adjust focus VR let the strip in the screen to be lightnest.

7. SCREEN ADJUSTMENT

   Adjust screen VR let the brightness suit as desired.

CANCEL VENETAIN BLINED ALIGNMENT

* Set TV/Monitor switch at monitor.
* The video signal of demodulation pattern send to video in jack.
* The demondulation pattern on screen is from left side to right side, bar 2, bar 3, bar 4 sequently on up side.

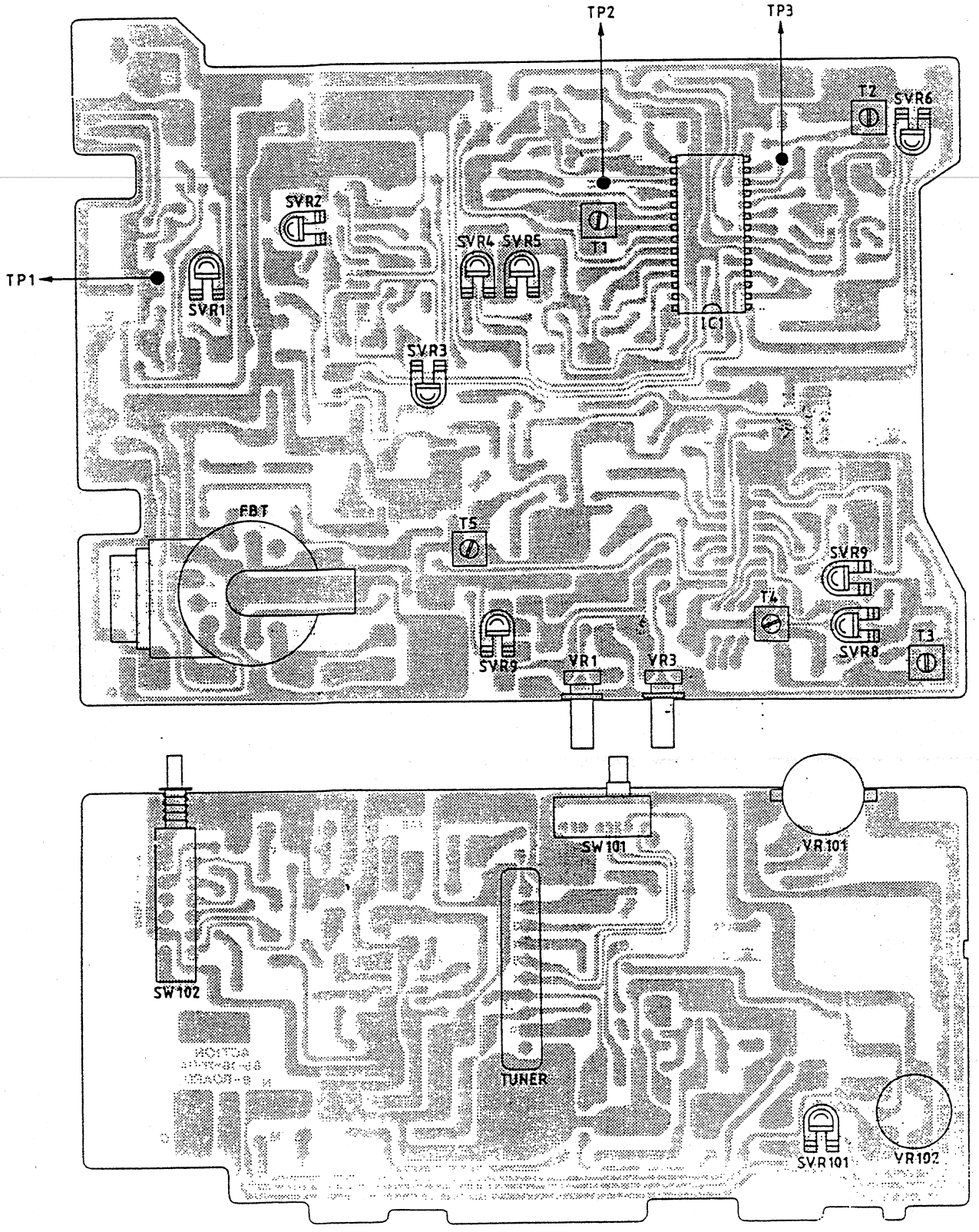
1) Mistuned T3 to top.
2) Cancel venetain blind on bar 3 by SVR7.
3) Cancel venetain blind on bar 1 and bar 4 by T4
4) Switch generator to color bar, adjust T3 for minimum venetain blind on purple area.

GENERAL ALIGNMENT INSTRUCTIONS

1. VIDEO IF ALIGNMENT

   TEST EQUIPMENT CONNECTION (See figure)

CHASSIS ALIGNMENT POINTS



ALIGNMENT PROCEDURE

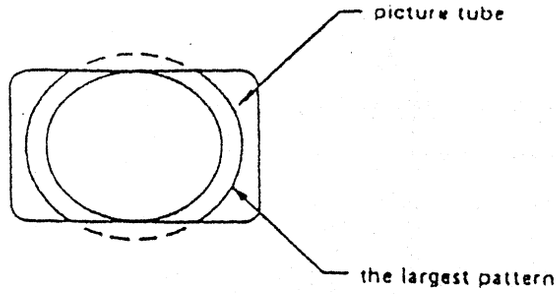
STEP	GENERATOR	SCOPE	ADJUST	REMARKS
Adjust Sound Detection Coil T2	System B,C,G,H 5.5MHz, System M,N 4.5MHz, System I 6MHz, System D,K,Kl 6.5MHz, 1kHz FM MOD Deviation 25kHz 80dB Output.	Connect to the Pin 12 of IC1	T2	Adjust T2 so the signal of 1kHz in scope may be max.

VERTICAL DEFLECTION ALIGNMENT

(1) Tune the receiver in a test pattern.

(2) Adjust V-SIZE CONTROL SVR3

When the inside of the largest circle of test pattern reaches near round pattern. (See the figure)



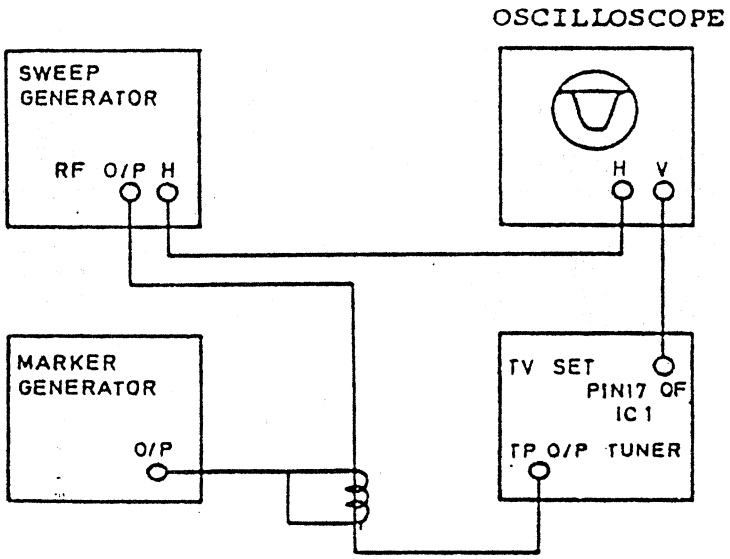
OSCILLOSCOPE: Connect to the base of IC1 PIN17.

SWEEP GENERATOR: Connect through a MATCHING PAD to the test point (T.P) of the tuner.

MARKER GENERATOR: Couple loosely to the output cable of sweep generator.

DC SUPPLIES: Connect a SVR 1M OHM between IC1 PIN 19 and ground. Add DC + 12V at DC Jack.

Adjust Sweep Generator to lowest signal level consistent with usable			
Step	Sweep Frequency	Marker Frequency	Remark
Adjust VIF Detector T1 for marker point maximum	25-45 MHz (45-65MHz for Japan). 30-50 MHz for CCIR.	System B,C,G,H 36.7MHz System I 37.3MHz System M,N 44MHz (57MHz for Japan) (34.7MHz for Austraria system)	In the parenthesis for exception.



VIDEO IF ALIGNMENT CONNECTING FIGURE

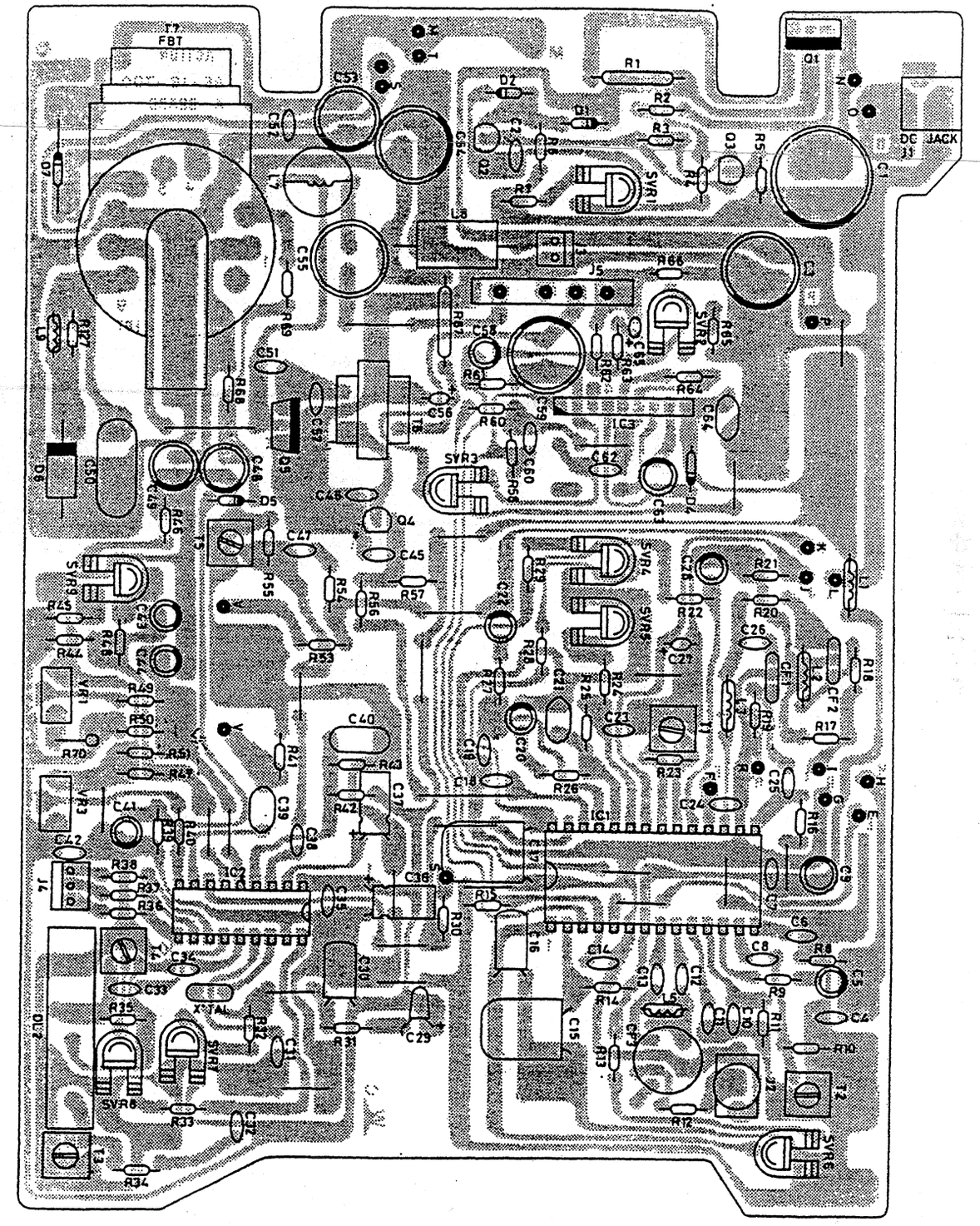
2. SOUND IF ALIGNMENT

TEST EQUIPMENT CONNECTION

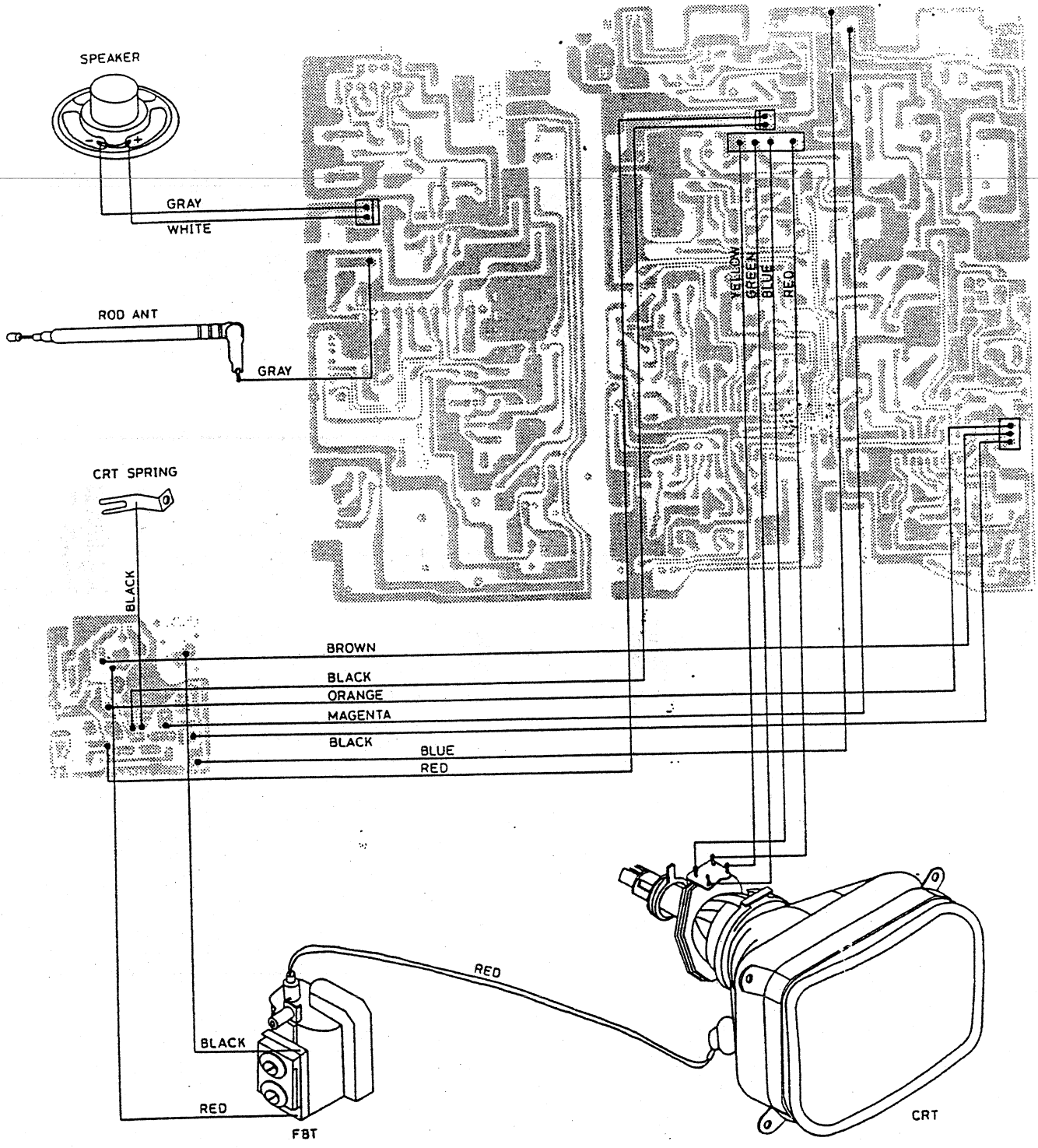
SIGNAL GENERATOR: Connect to the IC1 PIN 17 through a MATCHING PAD.

OSCILLOSCOPE: Connect to the PIN 12 of IC1

MAIN P.C.B. (Top View)

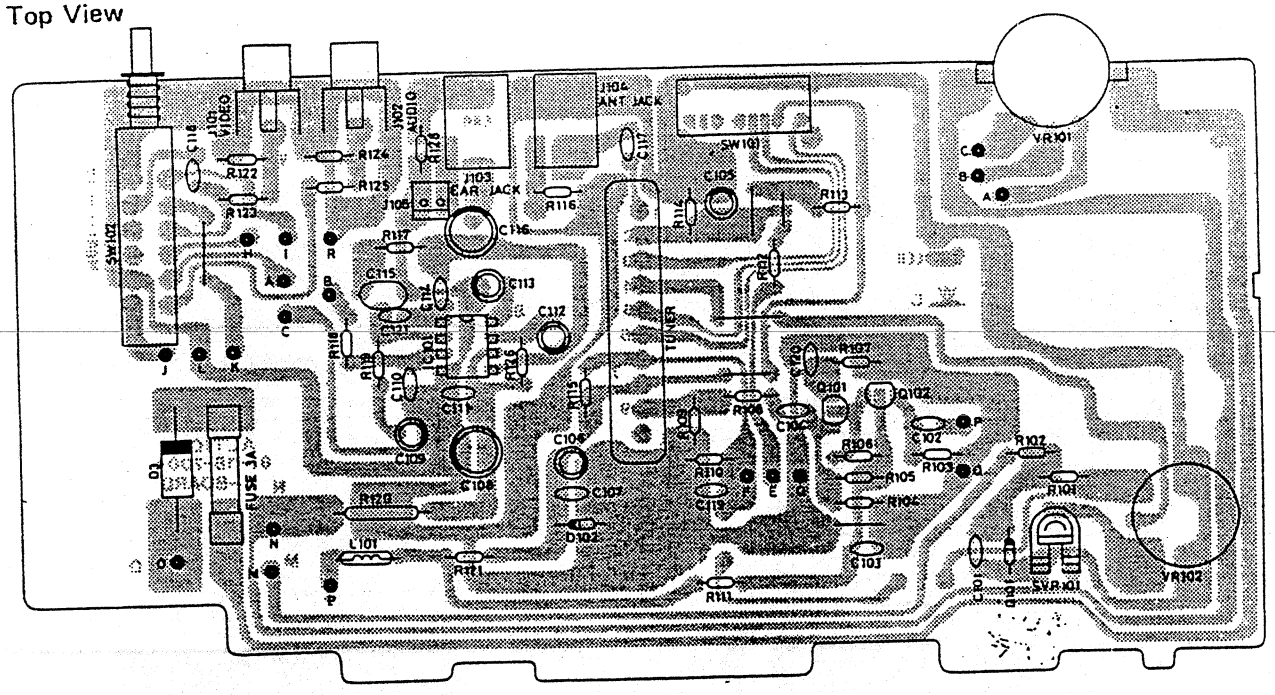


WIRING DIAGRAM



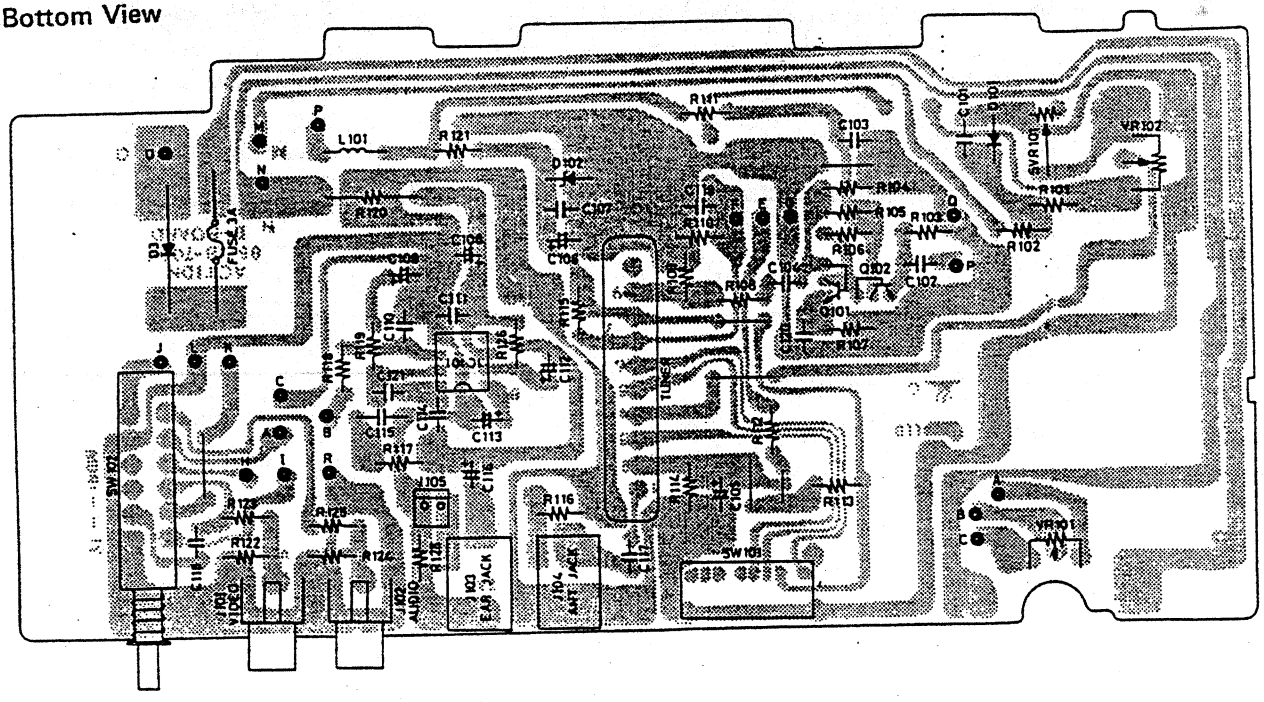
TUNING P.C.B.

Top View

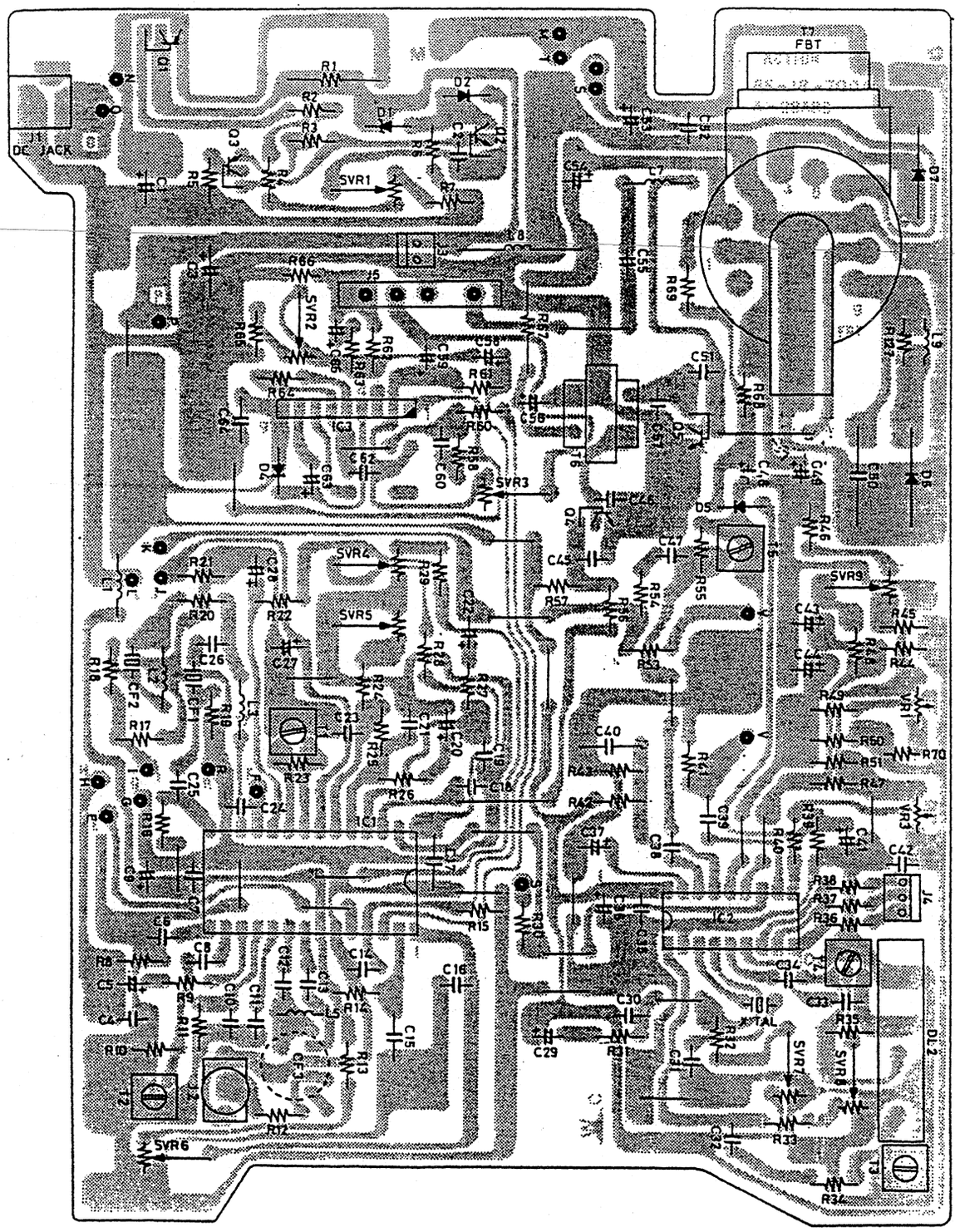


TUNING P.C.B.

Bottom View

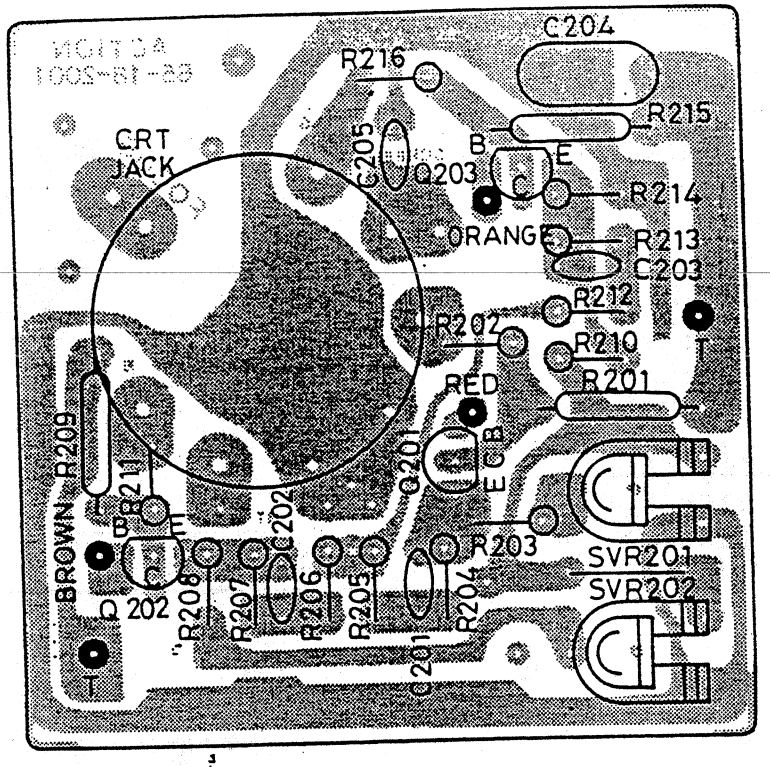


MAIN P.C.B. (Bottom View)



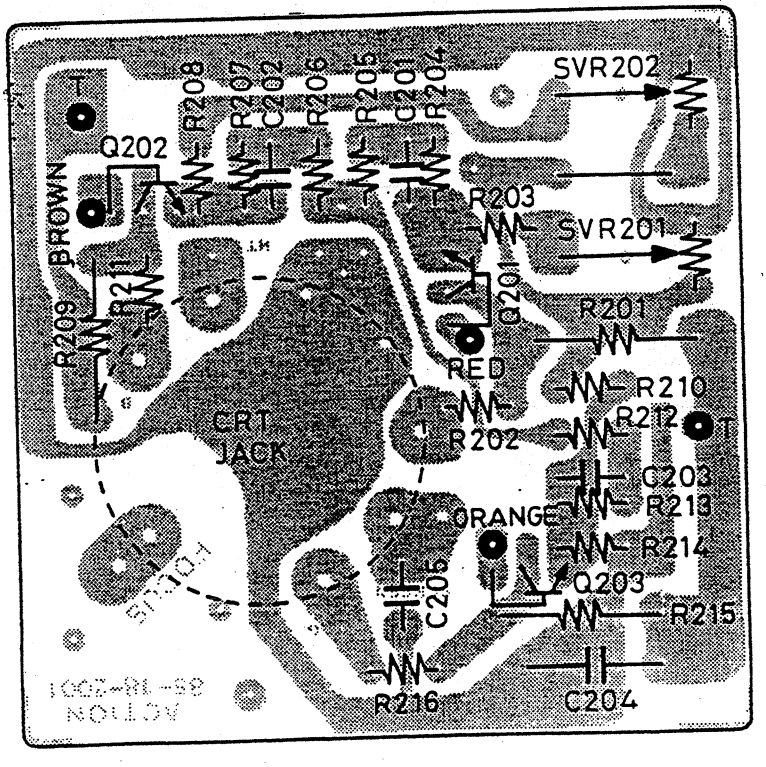
CRT SOCKET P.C.B.

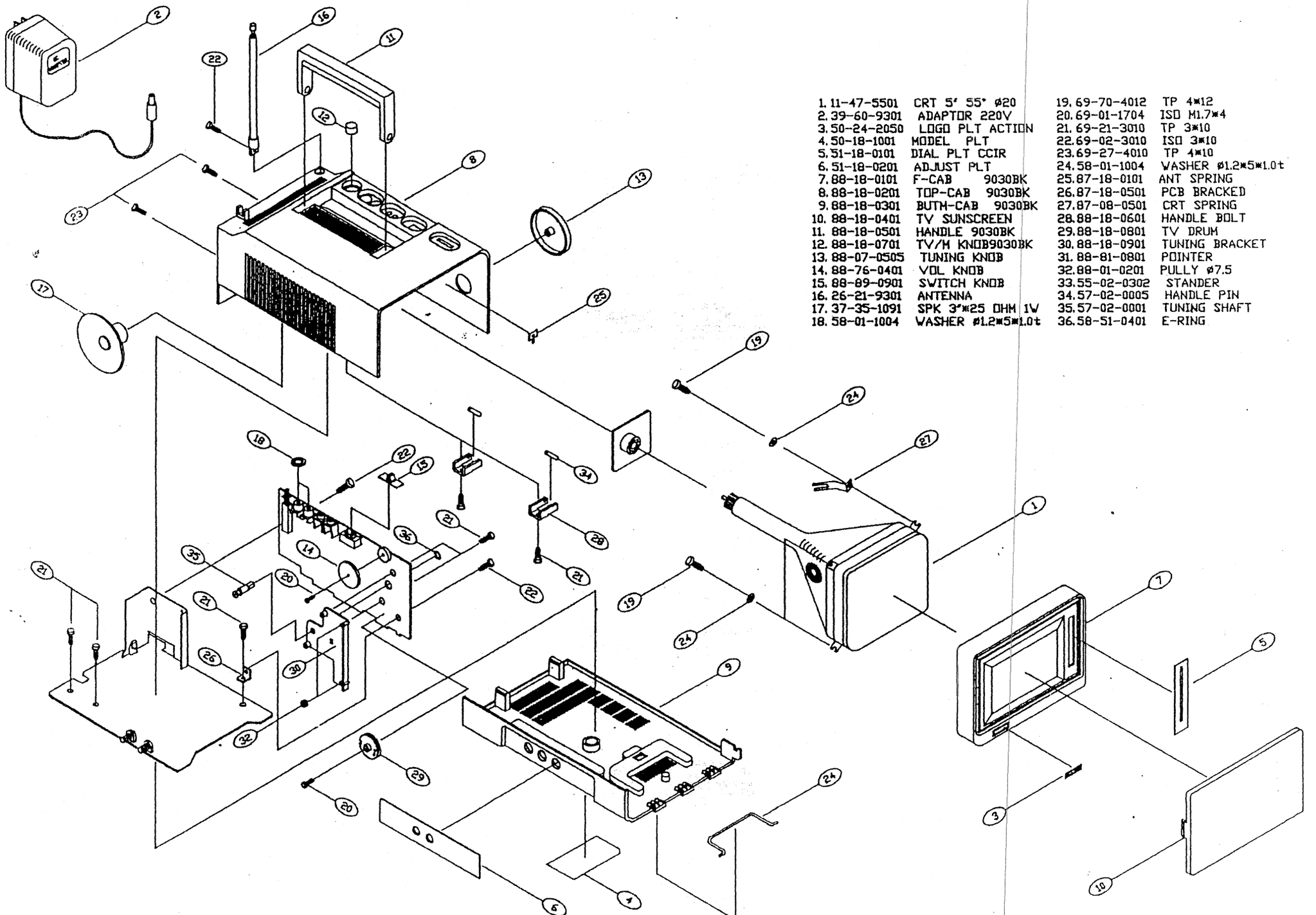
Top View



CRT SOCKET P.C.B.

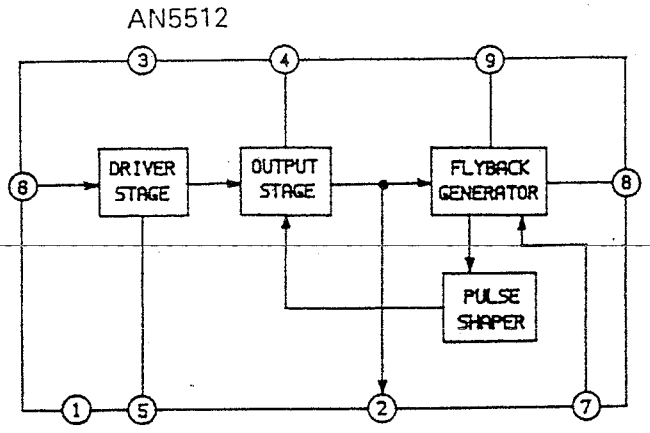
Bottom View

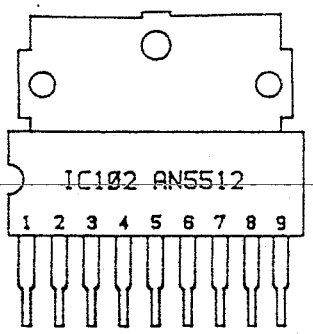




1. 11-47-5501	CRT 5' 55° ø20	19. 69-70-4012	TP 4*12
2. 39-60-9301	ADAPTOR 220V	20. 69-01-1704	ISO M1.7*4
3. 50-24-2050	LOGO PLT ACTION	21. 69-21-3010	TP 3*10
4. 50-18-1001	MODEL PLT	22. 69-02-3010	ISO 3*10
5. 51-18-0101	DIAL PLT CCIR	23. 69-27-4010	TP 4*10
6. 51-18-0201	ADJUST PLT	24. 58-01-1004	WASHER ø1.2*5*1.0t
7. 88-18-0101	F-CAB 9030BK	25. 87-18-0101	ANT SPRING
8. 88-18-0201	TOP-CAB 9030BK	26. 87-18-0501	PCB BRACKED
9. 88-18-0301	BUTH-CAB 9030BK	27. 87-08-0501	CRT SPRING
10. 88-18-0401	TV SUNSCREEN	28. 88-18-0601	HANDLE BOLT
11. 88-18-0501	HANDLE 9030BK	29. 88-18-0801	TV DRUM
12. 88-18-0701	TV/M KNOB9030BK	30. 88-18-0901	TUNING BRACKET
13. 88-07-0505	TUNING KNOB	31. 88-81-0801	POINTER
14. 88-76-0401	VOL KNOB	32. 88-01-0201	PULLY ø7.5
15. 88-89-0901	SWITCH KNOB	33. 55-02-0302	STANDER
16. 26-21-9301	ANTENNA	34. 57-02-0005	HANDLE PIN
17. 37-35-1091	SPK 3"*25 OHM 1W	35. 57-02-0001	TUNING SHAFT
18. 58-01-1004	WASHER ø1.2*5*1.0t	36. 58-51-0401	E-RING

IC BLOCK DIAGRAM



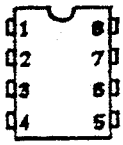


IC LEAD IDENTIFICATIONS

1. GND (0V)
2. Output (4.0V)
3. NC (0V)
4. Supply Voltage For Output (9.5V)
5. Drive Tr. Collector (5.3V)
6. Input (0.6V)
7. Trigger Pules Input (0.6V)
8. Pulse Amp. Output (0V)
9. Vcc (10.3V)

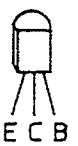
IC LEAD IDENTIFICATIONS

IC103
TBA 820M

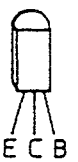


1. Frequency Compensation (0.6V)
2. Gain Setting (0.5V)
3. Input (0V)
4. Ground (0V)
5. Output (5.5V)
6. Supply Voltage (11.5V)
7. Bootstrap (12.1V)
8. Ripple Rejection (7.7V)

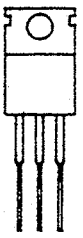
TRANSISTORS PIN DESIGNATION



1. 8550
2. C388A
3. C945
4. 8050C
5. 5417F



C2229



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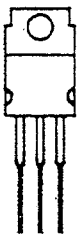

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